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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,799	07/31/2003	Brian Todd Kelley	CM03579J/10-159	1998
7590 02/23/2006 LAW OFFICES OF CHARLES W. BETHARDS, LLP P.O. BOX 1622 COLLEYVILLE, TX 76034			EXAMINER NGUYEN, DUC M	
			ART UNIT 2685	PAPER NUMBER
DATE MAILED: 02/23/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/631,799	Applicant(s) KELLEY, BRIAN TODD	
	Examiner Duc M. Nguyen	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/2/03</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Information Disclosure Statement

1. The references listed in the information disclosure statements submitted on 9/2/03 has been considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1-6, 9, 12-16, 18, 20-22, 25-28, 31-32** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Liu et al** (IEEE, "A decorrelating RAKE receiver for CDMA Communication over Frequency-selective Fading Channel", Vol. 47, No. 7, July 1999).

Regarding claim **1**, **Liu** discloses a decorrelating RAKE receiver (see section III, pages 1038 – 1040), comprising

- a plurality of filters comprising a plurality of filter coefficients (see Fig. 1 regarding W_1 to W_L blocks, wherein each block would read on a filter as claimed);
- a coefficient generator (see equation (7) on page 1039, wherein it is clear that a coefficient generator would obviously be required in order to generate W_j coefficient vectors);

- a combiner (see Fig. 1 regarding the coherent combiner).

Therefore, the claimed limitations are made obvious by Liu.

Regarding claim 2, the claim is rejected for the same reason as set forth in claim 1 above, wherein it is clear that Liu would disclose an autocorrelator processor as claimed (see equation (7) on page 1039, and equation (9) on page 1040, note for the autocorrelation function $y y$ and autocovariance matrix R_{yy}).

Regarding claim 3, the claim is rejected for the same reason as set forth in claim 1 above. In addition, based on the specification regarding the "receiver or user identification information" C_i description and equation (1) on page 14, and by comparing the eq. (1) in the specification with the eq. (7) in Liu, it is clear that the "a priori information" C_i in Liu would obviously correspond the "receiver identification information" as claimed (i.e, they both subject to the constraint $C.h$ or $C.W = \text{identity matrix } I$).

Regarding claim 4, the claim is rejected for the same reason as set forth in claim 1 above. In addition, Liu would disclose an inversion processor as claimed (see equations (12) and (13) on page 1040).

Regarding claim 5, Liu would disclose a "receiver identification information" for the same reason as set forth in claim 3 above.

Regarding claim 6, the claim is rejected for the same reason as set forth in claim 1 above. In addition, Liu teaches a recursive architecture to obtain the filter coefficients W_i (see equation [11] on page 1040).

Regarding claim **9**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to use a pipeline architecture in Liu, for speeding up the computation of the filter coefficients W_i .

Regarding claim **12**, the claim is rejected for the same reason as set forth in claim 1 above, wherein it is clear that Liu would disclose a wireless device as claimed.

Regarding claims **13-16, 18, 20**, the claims are directed to a method and could be interpreted and rejected for the same reason as set forth in claims **1-6, 9, 12** above.

Regarding claims **21-22, 25**, the claims are directed to a signal processor and could be interpreted and rejected for the same reason as set forth in claims **1-6, 9, 12** above.

Regarding claims **26-28, 31-32**, the claims are directed to a CDMA spread spectrum system, and could be interpreted and rejected for the same reason as set forth in claims **1-6, 9, 12** above.

4. Claims **7-8, 10-11** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Liu** in view of **Wang** et al (IEEE, "Adaptive joint multiuser detection and channel estimation in multipath fading CDMA channels", Wireless Networks 4, 1998, pages 453-470).

Regarding claims **7-8, 10-11**, **Liu** would disclose all the claimed limitations, see claims 1-6 above, except for a Levinson Durbin algorithm is used to obtain the matrix inverse of the autocorrelation matrix R_{yy} . However, it is noted that since the use of

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Levinson Durbin algorithm for solving matrix inverse is well known in literature as disclosed by **Wang** (see section 6.4 on pages 463-465), it would have been obvious to one skilled in the art at the time the invention was made to incorporate Wang's teaching to Liu for utilizing the Levinson Durbin algorithm in Liu as well, thereby providing predictive calculator as claimed, for utilizing advantages of Levinson Durbin algorithm such as less complexity and operations, and require only $O(N)$ memory locations.

Regarding claims **17, 19, 23-24, 29-30**, the claims are interpreted and rejected for the same reason as set forth in claims **7-8, 10-11** above,

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US006404806B1 to **Ginesi et al**,

US006078573A to **Batalama et al**,

US005414699A to **Lee**, and

US 20040095990A1 to **Gossett et al**.

6. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

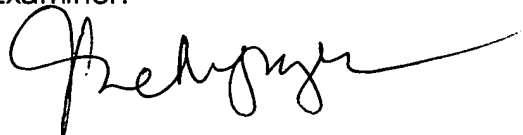
Hand-delivered responses should be brought to Customer Service Window,
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893,
Monday-Thursday (9:00 AM - 5:00 PM).

Or to Edward Urban (Supervisor) whose telephone number is (571) 272-7899.

Duc M. Nguyen, P. Examiner.

Feb 8, 2006

A handwritten signature in black ink, appearing to read 'D. Nguyen', with a long horizontal flourish extending to the right.